UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

October 4, 2005

Southern Nuclear Operating Company, Inc.
ATTN: Mr. D. E. Grissette, Jr.
Vice President-Vogtle Project
P. O. Box 1295
Birmingham, AL 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY INSPECTION REPORT 05000424/2005006 AND 05000425/2005006

Dear Mr. Grissette:

On September 1, 2005, the U. S. Nuclear Regulatory Commission (NRC) completed a Safety System Design and Performance Capabilty inspection at your Vogtle facility. The enclosed inspection report documents the inspection results which were discussed on September 1, 2005, with Mr. T. Tynan and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http: //www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Charles R. Ogle, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos.: 50-424, 50-425
License Nos.: NPF-68, NPF-81

Enclosure: NRC Inspection Report 05000424/2005006 and 05000425/2005006
w/Attachment: Supplemental Information

cc w/encl: (See page 2)

cc w/encl:
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X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X NON-SENSITIVE
ADAMS: X Yes ACCESSION NUMBER:**ML052780003**

OFFICE	RII:DRS	RII:DRS	RII:DRP	RII:DRS	RII:DRS	RII:DRS	RII:DRS
SIGNATURE	M. Widman	C. Smith	M.Bates	R. Taylor	R.Rodriguez	D. Mas-Penaranda	L.Mellen
NAME	/RA/	/RA/	/RA/	/RA/	/RA/	/RA/ C. Smith for/	/RA/
DATE	10/03/2005	09/27/2005	09/29/2005	09/28/2005	09/28/2005	10/04/2005	09/28/2005
E-MAIL COPY?	YES	YES	YES	YES	YES	YES NO	YES NO

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-424, 50-425
License Nos.:	NPF-68, NPF-81
Report Nos.:	05000424/2005006 and 05000425/2005006
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Vogtle Electric Generating Plant
Location:	7821 River Road Waynesboro, GA 30830
Dates:	April 2, 2005 August 15 - 19, 2005 August 29 - September 1, 2005
Inspectors:	C. Smith, P. E., Senior Reactor Inspector (Lead Inspector) M. Bates, Operations Engineer D. MasPenaranda, Reactor Inspector R. Taylor, Reactor Inspector R. Rodriquez, Reactor Inspector
Approved by:	Charles R. Ogle, Chief Engineering Branch 1 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000424/2005-006, 05000425/2005-006; 04/02/2005, 08/15-08/19/2005, and 08/29/2005 - 09/01/2005; Vogtle Units 1 and 2; Safety System Design and Performance Capability Inspection.

The report covered a one-day inspection of containment and a two-week period of onsite inspection by a team of inspectors, from the NRC's Region II office. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Rev. 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events and Mitigating Systems

1R21 Safety System Design and Performance Capability (71111.21)

The team evaluated the capability of installed plant equipment to detect and respond to a loss of coolant accident (LOCA) including a small break LOCA inter-system LOCA, and large break LOCA. Procedures which direct the mitigating actions for these events were also evaluated.

A specific list of components and documents reviewed is included in the Attachment to this report.

.1 System Needs

.11 Process Medium

a. Inspection Scope

The team reviewed the availability and reliability of water sources required for LOCA events. These water sources included the reactor water storage tank (RWST) and the containment recirculation sump. The review included design documentation; drawings; Updated Final Safety Analysis Report (UFSAR); Technical Specifications (TS); corrective actions history; volumetric and water depth calculations for the RWST, and the containment recirculation sump; calculations of system capacity; and calculations of net positive suction head (NPSH) available and required for the centrifugal charging pumps (CCP), safety injection (SI) pumps, and residual heat removal (RHR) pumps. Also, included was a review of minimum flow protection for the SI and the RHR pumps.

The reviews were performed in order to determine the adequacy of the water supplies for the systems required to respond to a LOCA. The reviews were also performed to verify that design bases requirements delineated in the design basis documents (DBDs) for the water supplies were consistent with the plant's current licensing bases requirements.

b. Findings

No findings of significance were identified.

.12 Energy Sources

a. Inspection Scope

The team reviewed voltage calculations performed for establishing the loss of voltage and degraded voltage relay set points at which the engineered safety feature (ESF)

sequencers initiate logic for providing under voltage protection of the Class 1E electrical distribution system. The team also reviewed voltage calculations completed for selected motor operated valves (MOVs), and pump motors from the nuclear service cooling water (NSCW) system, the RHR and the chemical and volume control system (CVCS) systems.

The reviews were performed in order to verify that nominal trip set points delineated in the TS for undervoltage protection of the Class 1E electrical distribution system were being adequately implemented and that operation of the Class 1E electrical distribution system was in accordance with the requirements of the plant's operating license. Additionally, reviews of the voltage calculations of the selected components were performed in order to verify that the terminal voltages of mitigating equipment had a sufficient margin to ensure that the equipment would operate prior to separation of the Class 1E system from the switchyard, and also when loaded onto the emergency diesel generators (EDGs.) The voltage analyses were evaluated to specifically verify that mitigating equipment satisfied criteria delineated in DBDs, and would be capable of performing its design function under the most limiting voltage conditions prior to, and after separation of the Class 1E electrical distribution system from the switchyard.

The team also reviewed battery sizing calculations, 125 volt direct current (VDC) Class 1E electrical system one line diagrams, and 125 VDC Class 1E Electrical System DBDs in order to verify that the power supplies for a sample of process instruments were adequate based on vendor requirements and the DBDs.

b. Findings

No findings of significance were identified.

.13 Instrumentation and Controls

a. Inspection Scope

The team reviewed logic drawings showing the process parameters that are monitored and used for implementing logic under accident conditions for generation of the SI signal. The team also reviewed and evaluated piping and instrumentation (P&ID) flow diagrams, and instrument loop diagrams for these process instruments which identified a LOCA. The reviews were performed in order to verify that the process instruments provided input signals which were used to initiate logic for operation of equipment required to mitigate a LOCA. Process instrument channels evaluated included containment pressure, steam line pressure, and pressurizer pressure. The team also reviewed the logic implemented by the ESF sequencers that is used for load shed of electrical loads from the 4160 volts alternating current (VAC) shutdown board and sequencing of the engineered safeguard electrical loads onto the standby power system. The reviews were performed in order to verify that process instruments credited with identification of a LOCA and generation of a SI signal were consistent with the plant’s licensing and design bases requirements for actuation of the standby power system.

The team reviewed surveillance test procedures and logic functional testing of the instrumentation and control circuits to confirm that the control circuits implemented the functional requirements described in the design and licensing bases documents.

The team reviewed electrical schematics of the control logic for automatic start of the emergency core cooling system (ECCS) pump motors. The pump motors reviewed included motors for the CCP, SI, RHR and NSCW pumps. The team also reviewed control circuits for MOVs in the flow path of the CCP, SI, and RHR pumps that are required to operate upon initiation of a SI signal. Additionally, the team reviewed and evaluated electrical schematics of selected MOVs in order to verify that the control logic for the automatic transfer of the ECCS suction sources from the RWST to the reactor building sump was acceptable and that long term cooling from the reactor building sump was achievable. The reviews were also performed to verify that the control circuits implemented the functional requirements stated in DBDs and UFSAR.

b. Findings

No findings of significance were identified.

.14 Operator Actions

a. Inspection Scope

The team reviewed plant operating instructions, including emergency operating procedures (EOPs), abnormal operating procedures (AOPs), annunciator response procedures (ARPs), and operating procedures (OPs) that would be used in the identification and mitigation of small break, large break, and inter-system LOCA.

The team focused on installed equipment and operator actions that could be used to mitigate the event. The review was done to verify that the instructions were consistent with the UFSAR description of a LOCA event and with the Westinghouse Owner's Group Emergency Procedure Guidelines (EPGs), any step deviations were justified and reasonable, and the instructions were written clearly and followed the EOP writer's guide. The team reviewed job performance measures and training lesson plans pertaining to identification and mitigation of small break, large break, and inter-system LOCAs to confirm that training was consistent with the applicable operating instructions.

In addition, the team observed simulation of various LOCA scenarios on the plant specific simulator and walked down portions of applicable instructions to verify that operator training, instruction guidance, and instrumentation were adequate to identify a LOCA event and implement post-LOCA mitigation strategies. The manual operator action times for performance of LOCA mitigation activities were reviewed to verify consistency with accident analyses, EPGs, and operator training.

b. Findings

No findings of significance were identified.

.15 Heat Removal

a. Inspection Scope

The team reviewed calculations of the room cooling requirements for each CCP, SI, and RHR cubicle for normal and post-accident conditions at the maximum air temperature in order to verify that air temperature from each CCP, SI and RHR cubicle can be maintained below the maximum allowable limits. The team also reviewed calculations of the individual equipment cooling requirements for each CCP, SI, and RHR pump for normal and post-accident conditions in addition to inspecting and evaluating the test results of surveillance testing of the CCP, SI, and RHR pumps.

The reviews were performed in order to verify that each train of NSCW flow can support maximum heat loads as referenced in the UFSAR. Reviews of the surveillance tests results were performed in order to verify that the actual temperatures were consistent with calculated values and were within allowable limits.

b. Findings

No findings of significance were identified.

.2 System Condition and Capability

.21 Installed Configurations

a. Inspection Scope

The team walked down selected portions of the small break, large break, and inter-system LOCAs EOPs to verify the licensee had included appropriate human factors considerations in the procedures and in the plant. Equipment examined included accessible CCP, SI and RHR pumps, system valves, piping, and related components. During this walkdown the team compared valve positions with the configurations on the approved drawings and operating procedures. This walkdown also included verification of labeling, lighting, noise, communications and accessibility. Additionally, the team checked system alignments to verify consistency with design and licensing basis assumptions and the TS.

The team performed a field inspection of the 4160VAC shutdown boards and 480VAC load centers in order to verify that the installed configuration was consistent with design basis information delineated in the DBDs, one line diagrams, and electrical calculations of record. The team also performed a field inspection of the 125VDC Class 1E vital batteries, along with their respective chargers, inverters and DC distribution panels, in order to verify that the installed configuration was consistent with design basis information delineated in the DBDs, one line diagrams, and electrical calculations of record.

The team performed field inspection of the RWST level instruments in order to verify that the instruments were installed in accordance with the instrument installation drawings. Additionally, the team verified that the material condition of the field mounted instruments was acceptable and that redundant instrumentation sensing lines were adequately routed and protected to prevent common cause failure of the instruments. Freeze protection for the RWST instruments were also inspected during the walkdown.

Containment Walkdown

a. Inspection Scope

During the Unit 1 refueling outage prior to the start of this inspection, the team conducted a containment walkdown of systems, structures and components within the primary containment and within high radiation areas that were necessary to mitigate the consequences of a LOCA. The walkdown was conducted to assess the material condition of components not normally accessible while the Unit is at power.

b. Findings

No findings of significance were identified.

.22 Operations

a. Inspection Scope

The team reviewed the plant specific simulator to verify the operating procedures for the small break, large break, and inter-system LOCAs contained sufficient detail to mitigate the consequences of each postulated accident.

The team also reviewed the licensee's process for changes to equipment or procedures needed for the mitigation of LOCAs to verify any needed changes were incorporated into the plant specific simulator.

b. Findings

No findings of significance were identified.

.23 Designs

a. Inspection Scope

Mechanical Design Review

The team reviewed design calculations, specifications, the UFSAR, testing, maintenance, and modification documentation to verify that system and equipment design functions were appropriately maintained.

Periodic test procedures and equipment monitoring activities were reviewed to verify that design criteria were appropriately translated into the acceptance criteria in the tests for the CCP, SI, and RHR pumps, selected MOVs, and check valves. The team reviewed DBDs, selected piping, TS, operability testing, corrective maintenance, and modification documentation for LOCA mitigation equipment to assess the implementation and maintenance of the systems' design bases.

The team reviewed calculations and system configuration to assess the adequacy of the NPSH available for the CCP, SI, and RHR pumps. System design, testing, and as-maintained configuration were reviewed to assure pump minimum flow requirements and run out protection were provided for the pumps.

The reviews were performed to verify that the plant's design bases requirements specified in DBDs were consistent with the requirements delineated in the plant's current licensing bases documents. Additionally, the reviews were performed to verify that the plant was operated in accordance with the requirements of the operating license.

Electrical, Instrumentation, and Controls Design Review

The team reviewed the battery sizing calculation for the class 1E 125VDC electrical distribution system and assessed its adequacy to provide reliable power for selected class 1E instrumentation required to mitigate a LOCA event.
The team also reviewed uncertainty analyses and work orders completed for a calibration of the undervoltage and loss of voltage set points implemented by the ESF Sequencers for the Class 1E 4160V electrical distribution system.

Additionally, the team reviewed the EDG loading analysis to verify that brake horsepower ratings were correctly incorporated for the CCP, SI, and RHR pump motors. The reviews were performed to verify that the ECCS mitigating equipment would be provided with adequate electrical power during a LOCA event.

The team reviewed system flow diagrams, instrument setpoint calculations, instrument scaling documents, and calibration procedures and calibration test records for process instruments used to identify and mitigate a small break, large break, and inter-system LOCA. Specifically, the team reviewed instrument uncertainty calculations for the following process instruments: containment pressure, steam line pressure, pressurizer pressure, RWST level, and containment sump level.

The reviews were performed in order to verify that the plant calibration procedures have accurately incorporated the instrument loop uncertainties identified in the calculations of record. Additionally, reviews of the calibration test results data were performed in order to verify that the instruments were sufficiently accurate to comply with the plant's licensing bases requirements as demonstrated by the "as-found" values documented on the calibration data sheets.

b. Findings

No findings of significance were identified.

.24 Testing and Inspection

a. Inspection Scope

The team reviewed the 125VDC batteries surveillance test records to verify that the batteries are capable of meeting design basis load requirements. The team also reviewed interlock testing for a selected sample of ECCS MOVs to verify that all interlocks associated with these valves are being tested and proper operation is being confirmed.

The team reviewed data sheet records for instrument channels listed in the Attachment. The reviews were performed to verify that the plant surveillance procedures had correctly incorporated acceptance criteria and instrument uncertainties that were specified in the instrument loop uncertainty calculations of record. Also, the team reviewed records of completed surveillance tests and preventive maintenance that were performed on the instruments in order to verify that the related problems were being adequately corrected.

The team reviewed performance and post-maintenance testing of CCP, SI, and RHR pumps and valves to verify that the tests and inspections were appropriately verifying that the assumptions of the licensing and design bases were being maintained and that performance degradation would be identified. This included operability stroke time testing, thrust and torque testing, and corrective maintenance records for selected CCP, SI, RHR, and NSCW system risk-significant MOVs. The team also reviewed selected risk-significant check valve periodic tests to verify the check valves were demonstrated to function to support system operation.

b. Findings

No findings of significance were identified.

.3 Selected Components

.31 Component Degradations

a. Inspection Scope

The team reviewed preventive maintenance records for the last two years for selected electrical 4160VAC breakers to verify that potential degradation was monitored or prevented. **The team also reviewed preventive maintenance records,** testing documentation, calibration records, and work orders for instruments listed in the Attachment to assess the licensee's actions concerning maintaining the safety function, **reliability, and availability of the components in the system.**

The team also reviewed maintenance and testing documentation, modifications, performance trending, equipment history documented in work orders, and system health reports to assess the licensee's actions to verify and maintain the safety function, reliability and availability of selected components. Equipment reviewed included LOCA mitigation pumps and valves. The team also evaluated the potential for occurrence of common cause failure mechanisms that may be created during performance of maintenance activities. Additionally, the team reviewed in-service trending data for selected components in the CCP, SI, and RHR systems, to verify that the components were continuing to perform within the limits specified by the test and design basis.

b. Findings

No findings of significance were identified.

.32 Equipment/Environmental Qualifications

a. Inspection Scope

The team reviewed environmental qualification documentation for process instruments used to detect a small break, large break and inter-system LOCA. Selected post accident monitoring instruments required for evaluating plant process conditions during a LOCA event were also included in this review. The test data was reviewed in order to determine the accident inaccuracies for the worst case postulated accident environments where the instrument loop components were installed. The team verified that the instrument loop uncertainty calculations accurately incorporated these accident inaccuracies, and that the instrument channels statistical allowances under accident condition was of a value that ensured the instruments were sufficiently accurate to comply with the plant's licensing bases requirements.

b. Findings

No findings of significance were identified.

.33 Equipment Protections

a. Inspection Scope

The team walked down RWST level channels to verify that freeze protection was installed in accordance with design requirements for RWST level channels. The team visually inspected heat tracing for instrument housings and sensing lines to verify that freeze protection was installed in accordance with installation drawings. The team also walked down the spaces containing CCP, and the SI and RHR pumps to verify the equipment was adequately protected against external events such as flood, missiles, and high energy line break (HELB). Additionally, the team reviewed sumps and floor drains to verify that they were unobstructed and could perform their design functions.

b. Findings

No findings of significance were identified.

.34 Component Inputs/Outputs

c. Inspection Scope

The team reviewed acceptance criteria for MOV testing of a sample of risk significant MOVs to verify that differential pressure and torque requirements are met at degraded voltage conditions.

b. Findings

No findings of significance were identified.

.35 Operating Experiences

a. Inspection Scope

The team reviewed the licensee's applicability evaluations and corrective actions associated with the loss of coolant accident, specifically IN 95-03. The corrective action review included a review of training to both licensed and non-licensed operators, as well as changes and additions made to procedures. This review was conducted to verify plant specific issues were appropriately considered and to provide verification that operating experience related corrective actions were accomplished.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed corrective action documents related to the 125VDC and 6900VAC systems to verify that the licensee was identifying issues and entering them into their corrective action program. The team also reviewed a sample of condtion reports (CRs) related to process instrument equipment problems in order to verify that the licensee is identifying issues and entering them into the corrective action program. A condition report involving failure of ESF Sequencer 2A to initiate logic for load shed, was reviewed and evaluated by the team to ensure that adequate corrective actions had been developed and implemented by the licensee.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA6 Meetings, Including Exit

The lead inspector presented the inspection results on September 1, 2005, to Mr. Tom Tynan and other members of the licensee staff. Proprietary information was reviewed during the inspection but is not included in this inspection report.

Attachment

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

M. Byrd, Senior Engineer
C. Buck, Chemistry Manager
R. Dedrickson, Assistant General Manager- Operations
M. Hickox, Senior Engineer
D. Hines, Project Engineer
D. Javorka, Administrative Assistant
P. Kochery, Senior Technical Specialist
K. Lowery, Senior Engineer
T. Mattson, Senior Engineer
C. Miller, Performance Analysis Supervisor
R. Reddy, Senior Engineer
J. Robinson, Operations Manager
A. Sweat, Shift Support Supervisor
J. Swartzwelder, Project Manager
J. Swanson, Engineering Manager
T. Tynan, Plant General Manager
R. Vaught, Maintenance Manager
J. Williams, Assistant General Manager - Support

NRC (attended exit meeting)

G. McCoy, Senior Resident Inspector
C. Ogle, Chief, Engineering Branch No.1, Division of Reactor Safety

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

None

LIST OF COMPONENTS AND DOCUMENTS REVIEWED

Components

1R21.11a Process Medium

Mechanical Components

Unit 1 RWST
Unit 1 Emergency Containment Sump

1R21.12a Energy Sources

4160 VAC Class 1E Electrical Distribution System

4160 VAC Switchgear 1AA02
4160 VAC Switchgear 1BA03,
Engineered Safety Features Sequencers 1-1821-U3-001 and 1-1821-U3-002
Engineered Safety Features Sequencer 2A

Process Instruments

Containment Pressure PT0934, 0935, 0936, 0937
Steam Line Pressure SG Low P-0514, P-0515, P-0516
Steam Line Pressure SG High P-0534, P-0535, P-0536
Pressurizer pressure P-0455, P-0456, P-0457, P-0458
RWST Level LT-990, 991, 992, 993
Containment Sump Level (NR) LT7777, 7789
Containment Sump Level (WR) LT0764, 0765

Electrical Equipment

MOVs

1HV-8813, 8814 & 8920
1HV-8801A & B
1HV-0606 & 0607
1HV-8809A & B
1HV-8811A & B
1HV-8808A, B, C & D
1HV-8804A & B
1HV-1668A & 1669A

Pump Motors

1-1208-P6-002 & three
1-1204-P6-003 & four
1-1205-P6-001 & two
1-1202-P4-001 thru six

1R21.13a Instrumentation & Controls

Process Instruments

Containment Pressure PT0934, 0935, 0936, 0937
Steam Line Pressure SG Low P- 0514, P- 0515, P- 0516
Steam Line Pressure SG High P- 0534, P- 0535, P- 0536
Pressurizer Pressure P-0455, P- 0456, P- 0457, P- 0458
RWST Level LT-990, 991, 992, 993
Containment Sump Level (NR) LT7777, 7789
Containment Sump Level (WR) LT0764, 0765

1R21.14a and 1R21.22a Operator Actions

Pumps

1-1204-P6-004
2-1204-P6-004
1-1204-P6-003
2-1204-P6-003
1-1208-P6-002
2-1208-P6-002
1-1208-P6-003
2-1208-P6-003

Valves

1-MV-207
2-MV-207
1-HV-8806
2-HV-8806
1-MV-135
2-MV-135
1-HV-8923A
2-HV-8923A
1-HV-8923B
2-HV-8923B
1-MV-100
2-MV-100
1-MV-101
2-MV-101
1HV-8821A
2HV-8821A
1HV-8821B
2HV-8821B
1HV-8920
2HV-8920
1HV-8814
2HV-8814

1HV-8813
2HV-8813
1HV-8835
2HV-8835
1LV-0112D
2LV-0112D
1LV-0112E
2LV-0112E
1HV-8471A
2HV-8471A
1HV-8471B
2HV-8471B
1HV-8480B
2HV-8480B
1HV-8485A
2HV-8485A

Tanks

1-12-4-T4-001
2-12-4-T4-001

1R21.15.a Heat Removal

Unit 1 RHR Pump Coolers
Unit 1 CCP Lube Oil and Motor Coolers
Unit 1 SI Pump Lube Oil and Motor Coolers

1R21.21a Installed Configuration

RWST Level LT-990, 991, 992, 993

CCP Suction Check Valves
SI Suction Check Valves
CCP Discharge Check Valves
Accumulator Check Valves
RHR Discharge Check
1/2-1204-U6-163, 1/2-1208-U6-436

Valves:

1HV-1806
1HV8702A
1HV8808A
1HV8808B
1HV8808C
1HV8808D

Containment coolers

1-1501-A7-003
1-1501-A7-004
1-1501-A7-002

1R21.23a Design

Process Instruments

Containment Pressure PT0934, 0935, 0936, 0937
Steam Line Pressure SG Low P- 0514, P- 0515, P- 0516
Steam Line Pressure SG High P- 0534, P- 0535, P- 0536
Pressurizer Pressure P-0455, P- 0456, P- 0457, P- 0458
RWST Level LT-990, 991, 992, 993
Containment Sump Level (NR) LT7777, 7789
Containment Sump Level (WR) LT0764, 0765

Electrical Components

1HV-8813, 8814 & 8920
1HV-8801A & B
1HV-0606 & 0607
1HV-8809A & B
1HV-8811A & B
1HV-8808A, B, C & D
1HV-8804A & B
1HV-1668A & 1669A

Pump Motors

1-1208-P6-002 & 003
1-1204-P6-003 & 004
1-1205-P6-001 & 002
1-1202-P4-001 thru 006

Mechanical Components

1/2HV-8808A & B
1/2HV-1668A
1/2HV-1669A
1/2HV-8813
1/2HV-8814
1/2HV-8920

1R21.24a Testing and Inspection

Process Instruments

Containment Pressure PT0934, 0935, 0936, 0937
Steam Line Pressure SG Low P- 0514, P- 0515, P- 0516
Steam Line Pressure SG High P- 0534, P- 0535, P- 0536
Pressurizer Pressure P-0455, P- 0456, P- 0457, P- 0458
RWST Level LT-990, 991, 992, 993
Containment Sump Level (NR) LT7777, 7789
Containment Sump Level (WR) LT0764, 0765

Electrical components

125 VDC Class 1E Battery
MOVs 8811 A and B

Mechanical Components

1/2HV-8808A & B
1/2HV-1668A
1/2HV-1669A
1/2HV-8813
1/2HV-8814
1/2HV-8920
1HV-8813
1HV-8814
1HV-8920
1HV-8801A/B
1HV-8809A/B
1HV-8811A/B
1HV-8804A/B
1HV-1668A
1HV-1669A

1R21.31a Component Degradation
Process Instruments

Containment Pressure PT0934, 0935, 0936, 0937
Steam Line Pressure SG Low P- 0514, P- 0515, P-0516
Steam Line Pressure SG High P- 0534, P- 0535, P- 0536
Pressurizer Pressure P- 0455, P- 0456, P- 0457, P- 0458
RWST Level LT- 990, 991, 992, 993
Containment Sump Level (NR) LT7777, 7789
Containment Sump Level (WR) LT0764, 0765

Electrical Components

125 VDC Class 1E Electrical Distribution System
66900 VAC Electrical Distribution System

Mechanical Components

1/2HV-8808A & B
1/2HV-1668A
1/2HV-1669A
1/2HV-8813
1/2HV-8814
1/2HV-8920

1R21.32a Equipment/Environmental Qualification

Process Instruments

Containment Pressure PT0934, 0935, 0936, 0937
Pressurizer Pressure P- 0455, P- 0456, P- 0457, P- 0458
Containment Sump Level (NR) LT7777, 7789
Containment Sump Level (WR) LT0764, 0765

1R21.33a Equipment Protection

RWST Level LT-990, 991, 992, 993

1R21.34a Component Inputs/Outputs

Electrical Components

1HV-8813, 8814 & 8920
1HV-8801A & B
1HV-0606 & 0607
1HV-8809A & B
1HV-8811A & B
1HV-8808A, B, C & D
1HV-8804A & B
1HV-1668A & 1669A

1R21.35a Identification and Resolution of Problems

Process Instruments

Containment Pressure PT0934, 0935, 0936, 0937
Steam Line Pressure SG Low P- 0514, P- 0515, P- 0516
Steam Line Pressure SG High P- 0534, P- 0535, P- 0536
Pressurizer Pressure P- 0455, P- 0456, P- 0457, P- 0458

RWST Level LT-990, 991, 992, 993
Containment Sump Level (NR) LT7777, 7789
Containment Sump Level (WR) LT0764, 0765

Electrical Components

125 VDC Class 1E Electrical Distribution System
66900 VAC Electrical Distribution System
Engineered Safety Features 2A sequence (CR # 2004002015)

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Technical Specification Section 3.3.3, Post Accident Monitoring (PAM) Instrumentation
Technical Specification Section 3.3.5, 4.16 KV ESF Bus Loss of Power (LOP) Instrumentation

Updated Final Safety Analysis Report Chapters

FSAR Chapter 5, Reactor Coolant System and Connected Systems
FSAR Chapter 6, Engineered Safety Features
FSAR Chapter 8, Electrical Power
FSAR Chapter 15, Section 15.6.5, Loss of Coolant Accidents

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DC-1205, Residual Heat Removal System, Rev. 6
DC-1204, Vogtle Design Bases, Safety Injection System, Rev. 5
DC-1208, Chemical and Volume Control System (CVCS) and Boron Recycle System, Rev. 7
DC-1263, Post Accident Monitoring System, Rev. 10
DC-1620, Engineered Safety Features Actuation System, Rev. 5
DC- 1804, 4160 VAC System, Rev. 10
DC 1821, Standby Power System, Rev. 12
DC- 1805, 480 VAC System, Rev. 10
DC-1806, Class 1E DC System, Rev. 11
DC-1807, 120 VAC Power System, Rev. 9

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X4C1204T03, Refueling Water Storage Tank (RWST) Volume Distribution and Sizing, Rev. 4
X5CP0764, Containment Emergency Sump Floor Drains Level Indication, Rev. 4
X3CA18, Vogtle Unit 1 Load Study, Rev. 7
X3CA27, Degraded Grid / Under Voltage Relay Setting for Unit 1 and 2, Rev. 2
MX3CA27, Degraded Grid / Undervoltage Relay Setting for Units 1 and 2, Rev. A01
X3CA19, Class 1E AC MOV Starting Voltages, Rev. 8

X3CF02, Class 1E battery System, Rev. 16
1X3D- AA -K02A, 1A and Train “A” AC Busses Loading Table, Rev. 15
X41000U02, Valve Required Thrust/Torque and Operator Capabilities and Limitations for the Generic Letter 89-10 Scope MOVs, Rev. 17
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X4C2108V01, Aux Building HVAC Heat Load Calc, Rev. 0
X4C1202V03, Verification of NSCW Constant Heat Loads and Flows, Rev. 0
X4C1204V06, Flow and Head Parameters to Plot System Head Curves, Rev. 0
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X4C1204V06, System Head Calculations for Various Pumps, Rev. 0
X4C1000U01, Determination of Maximum Differential Pressure, Rev. 0
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24800-101 18 Months, Steam Pressure Loop 3 (Protection Channel II) Loop P-535 Channel Calibration. 8/31/03, 02/28/05
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19013-C, ES-1.3 Transfer to Cold Leg Recirculating, Rev. 26
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17061-1, Annunciator Response Procedure for ALB 61 On Process Control Panel, Rev. 17
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12006-C, Unit Cooldown to Cold Shutdown, Rev. 64

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2004002140, NRC Inspector Identified Items in Containment, 05/12/04
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84201-1, Safety Injection Leakage Assessment, Task Sheet Serial No.: 148273, 04/01/05
84201-2, Safety Injection Leakage Assessment, Task Sheet Serial No.: 125198, 11/01/02
84201-2, Safety Injection Leakage Assessment, Task Sheet Serial No.: 141608, 08/15/04
84003-C, Unit 1 RWST Pressure Testing of Piping and Components, Task Sheet Serial No.: 123542, 04/11/02

84003-C, Unit 2 RWST Pressure Testing of Piping and Components, Task Sheet Serial No.: 125131, 11/05/02
84003-C, Unit 1 RWST Pressure Testing of Piping and Components, Task Sheet Serial No.: 147823, 03/01/05
24806-101-147187, 18 Month RWST Level L-990 Channel Calibration, 11/05/04
24807-101-146919, 18 Month RWST Level L-991 Channel Calibration, 12/03/04
24807-201-136165, 18 Month RWST Level L-991 Channel Calibration, 07/11/03
24808-101-147189, 18 Month RWST Level L-992 Channel Calibration, 10/18/04
24808-201-2041133901, 18 Month RWST Level L-992 Channel Calibration, 02/06/05
24809-101-147301, 18 Month RWST Level L-993 Channel Calibration, 10/14/04
24809-201-141508, 18 Month RWST Level L-993 Channel Calibration, 01/30/04

Training Materials

System Description, V-LO-TX-13101, "Emergency Core Cooling System," Rev 2.0
Lesson Plan, LO-LP-37011-17-C, "Respond to Reactor Trip," Rev. 17
Lesson Plan, LO-LP-37111-15-C, "Operator Response to a Loss of Primary Coolant," Rev. 15
Lesson Plan, LO-LP-37112-10, "Post-LOCA Cooldown and Depressurization," Rev. 10
Lesson Plan, LO-LP-37113-12, "Transfer to Cold Leg Recirc," Rev. 12
Lesson Plan, LO-LP-371114-14, "Transfer to Hot Leg Recirc, and Loss of Emergency Coolant Recirculating," Rev. 14
Lesson Plan, LO-LP-37011-17-C, "Respond to Reactor Trip," Rev. 17
Lesson Plan, LO-LP-37111-15-C, "Operator Response to a Loss of Primary Coolant," Rev. 15
Lesson Plan, LO-LP-37112-10, "Post-LOCA Cooldown and Depressurization," Rev. 10
Lesson Plan, LO-LP-37113-12, "Transfer to Cold Leg Recirc," Rev. 12
Lesson Plan, LO-LP-371114-14, "Transfer to Hot Leg Recirc, And Loss of Emergency Coolant Recirculating," Rev. 14
Lesson Plan, LO-LP-37001-06-C, "Introduction to EOPs," Rev. 6
Lesson Plan, LO-LP-37002-14-C, "Format and Use of EOPs," Rev. 14
JPM, RQ-JP-19000-006, "Evaluate ECCS Termination Criteria - Injection Flow Required," Rev. 1
JPM, RQ-JP-19000-007, "Evaluate ECCS Termination Criteria - Injection Flow Not Required," Rev. 1
JPM, RQ-JP-19011-001, "Re-establish CCP Cold Leg Injection," Rev. 4
JPM, RQ-JP-19011-002, "Return Charging to Service Following Termination of Safety Injection," Rev. 12
JPM, RQ-JP-19013-001, "Transfer ECCS Pumps to Cold Leg Recirculating," Rev. 7
JPM, RQ-JP-19013-002, "Transfer ECCS Pumps to Cold Leg Recirculating With Failure of Train Auto Swapover," Rev. 9
JPM, RQ-JP-19013-003, "Transfer Containment Spray System to Recirculating," Rev. 19
JPM, RQ-JP-19014-001, "Transfer ECCS Pumps to Hot Leg Recirculating," Rev. 5
JPM, RQ-JP-19014-002, "Transfer ECCS Pumps to Hot Leg Recirculating with Failure of Trains B SI Alignment," Rev. 5
JPM, RQ-JP-19112-001, "Respond to LOCA Outside Containment," Rev. 10
JPM, RQ-JP-19221-001, "Manually Align Safety Injection System for Cold Leg Injection," Rev. 16
JPM, RQ-JP-19251-002, "Respond to High Containment Pressure," Rev. 0
JPM, RQ-JP-19253-001, "Respond to Containment High Radiation," Rev. 6
JPM, RQ-JP-19263-001, "Prepare Containment for Reactor Vessel Venting," Rev. 12
JPM, RQ-JP-19263-002, "Vent Reactor Vessel to Remove Voids," Rev. 9

Miscellaneous

RCS leakage data from plant computer from July 2004 to July 2005, Units 1 & 2
Accumulator level data from plant computer from May 2005 to August 2005
Environmental Qualification Report, EQDP X6AA15
SCL02238, NSCW HX Periodic Inspection - Maintenance Requirements, Rev. 08
Vendor Technical Manuals for Charging, RHR, and SI Pumps
Pump performance Curves for CCP, SI, and RHR
LDCR 20040067, Change to RHR IST Testing
Votes/Viper test data for selected MOVS
Vibration Trends for CCP, SI, and RHR Pumps

Modifications

DCP 1979006101, Safety Sequencer Control Logic Upgrade (Unit 1)
DCP 97-V2N0062, Safety Features Sequencer Control System Replacement, (Unit 2)

Vendor Manuals

AX5D04-00036 Model 1153 Series B Alphaline Nuclear Pressure Transmitter, Rev.11
AX5D04-00141 Model 1154 Series H Alphaline Nuclear Pressure Transmitter, Rev. 27
AX5AD07-00007 Model 764 Technical Manual Differential Pressure Electronic Transmitter, Rev. 3
AX5AF05-00038 Gems Converter Installation, Operation & Maintenance Bulletin, Rev. 3
AX6AA04-00030 Precautions, Limitations & Set points For Nuclear Steam Supply, Rev. 50
1X6AA10-00149 Set point Methodology for Protection Systems, Rev 5
WNA-GO-00018-GAE, Safety Features Sequencer Technical Manual, Rev. 0.
AX3AE03-365, Technical Manual Solid State Logic System for Power Plant Control, Version 13

Corrective Action Reports (CRs) Written Due to this Inspection

CR 2005106285	1B CCP Had Excessive Oil Accumulation on the Pump Skid
CR 2005106287	2B CCP Had Excessive Oil Accumulation on the Pump Skid
CR 2005106387	Missing Sequencer Surveillance Test During Last Performance
CR 2005106390	No Emergency Lighting Was Provided in Room A13 and A18.
CR 2005106399	Flex Conduit Separated from the Conduit Fitting on Level Transmitter 1LT-0993.
CR 2005106412	Performance and Documentation of the Completion of 1400-1/2 Rounds.
CR 2005106413	Surveillance Task Listed in Documentum under Wrong Number.
CR 2005106415	Floor Drain in the 1A CCP Room Covered with Tape and Debris.
CR 2005106418	Wrong Trip Set Point in Sequencer Instruction Manual
CR 2005106904	Data on Surveillance Test Sn135914 Dated 5/21/03 Was Recorded Wrong.
CR 2005106945	Incorrect Methodology Used in the Vendor Manual for the Trip Set Potentiometer
CR 2005106986	A Step Deviation for the WOG EOP Was Not Prepared.
CR 2005106999	To Review the Need for Initiating CRs When as Found Calibrations Are Found Out of Tolerance.

End Attachment